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AUTHOR Harrington, David M.; And Others
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ABSTRACT

The phenomenon of intolerance of ambiguity in young children was investigated in this longitudinal study. Personality data for the total of 120 children in the study were obtained from: (1) descriptions of the children at both 3 and 4 years of age by their teachers, using the California Child Q-set; (2) the children's performance on the Lowenfeld Mosaic Test; (3) their reactions to a Curiosity Box covered with a variety of hinges, snaps, electrical switches, sandpaper, bull-chains, latches and peepholes; and (4) independent observations of the children in a relatively unstructured 20-minute sandbox play situation. Information on parent-child relationships pertinent to children's intolerance of ambiguity was obtained from: (1) self-reported parental child-rearing attitudes and practices; (2) video-taped parental behaviors in a teaching situation; and (3) descriptions of mothers and fathers by the mothers according to an Adjective Q-sort. Data suggest that intolerance of ambiguity in young children can be described; that it is relatively stable over a period of at least one year; that children intolerant of ambiguity tend to avoid, restrict attention within, and impose premature structure upon relatively unstructured situations; and that this characteristic is significantly associated with paternal hostility, impatience and rejection for boys, and with unusually high levels of maternal supportiveness for girls. (ED)

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Behavioral Manifestations and Parental Correlates of Intolerance

of Ambiguity in Young Children *1

David M. Harrington, Jeanne H. Block, & Jack Block

University of California, Berkeley

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A quarter of a century ago, Else Frenkel-Brunswik introduced the term "intolerance of ambiguity" in an attempt to describe a constellation of personality and cognitive characteristics associated with ethnocentrism in young children. Frenkel-Brunswik suggested that children who are made unusually anxious by ambiguity are more apt to structure situations prematurely and are more apt to ignore aspects of a situation which threaten their premature solutions and their precariously maintained cognitive equilibria than are children for whom ambiguity is less troubling (Frenkel-Brunswik, 1949). Children who are unusually intolerant of ambiguity, reasoned Frenkel-Brunswik, are therefore prone to arrive precipitously at the overly simplified and non-probabilistic solutions characteristic of the ethnocentric individual.

Though considerable attention has been devoted to the relationship between intolerance of ambiguity and ethnocentrism in samples of children ranging in age from 8 to 17 years (Levitt, 1953; McCandless & Holloway, 1955; Muss, 1959, 1960; Rosenblum, 1957) and to certain functional relationships involving perceptual closure, intolerance of ambiguity and anxiety

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among children between the ages of 10 and 14 years (Smock, 1957, 1958), relatively little attention has been devoted to a study of intolerance of ambiguity in younger children despite the possibility that intolerance of ambiguity has significantly maladaptive ramifications in the child's early development. Though a child can avoid ambiguity for the short run by avoiding or quickly leaving complex and ambiguous fields or by restricting attention to a few elements within a complex field or by imposing a premature and overly-simplified structure upon an ambiguous field, such techniques sharply reduce the child's ability to analyze, integrate, interact with, and eventually assimilate and utilize the features and materials of the field. In the long run such defensive techniques would tend to minimize the child's opportunity to develop flexibly accommodative structures and strategies for coping with complexity and ambiguity.

In well-defined problem situations, for example, in which subjects are asked to generate or identify a single correct solution, intolerance of ambiguity may lead to the hasty production of solutions which are incorrect because they are generated on the basis of incomplete examinations and analyses of the problem. Results compatible with this hypothesis have recently been reported in a study which found that four-year-olds who responded quickly but inaccurately to the Matching Familiar Figures test were independently described by their nursery school teachers as significantly less tolerant of ambiguity, more susceptible to anxiety and more prone to rigid and stereotyped behavior under conditions of stress than children who responded more slowly and/or more accurately (Block, Block, & Harrington, 1974).

In more open problem-solving situations, on the other hand, in which

there are no unequivocally "correct" solutions and in which individuals must define the character of an adequate solution for themselves (i.e., in situations which are "ill-defined" in Reitman's sense (1965)), intolerance of ambiguity may lead to hurried responses which fail to encompass or fully exploit the potential inherent in the available resources.

In even more open-ended situations in which there is little or no pressure for a "solution" of any particular kind but in which there is much that is novel and not readily assimilated, a child made anxious by ambiguity might either try to escape from or might remain relatively immobilized in the situation, whereas a child more tolerant of ambiguity might fruitfully explore and interact with those aspects of the environment which are initially ambiguous and puzzling. Because very little empirical research has been focussed on the relationship between intolerance of ambiguity and behavior in relatively unstructured situations; however, it is not possible to ground these speculations in relevant empirical evidence.

It is therefore my purpose this morning to (a) describe the assessment and temporal stability of intolerance of ambiguity in a sample of preschool children, (b) mention briefly the relationship between the children's intolerance of ambiguity and their behavior in three relatively unstructured situations, (c) present evidence regarding the relationship between intolerance of ambiguity in the children and some characteristics and behaviors of their parents and, (d) offer some tentative interpretations of the relationships involving the parent-child interactions.

Method

Subjects

The relationships reported here are based upon a total of 120

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children and 178 of their parents who participated in an ongoing longitudinal study of personality and intellectual development in children between the ages of three and eight. This larger research project is being directed by Jack and Jeanne Block at the University of California, Berkeley (Block & Block, Note 2; Block et al., 1974). Our total sample, from which these children are a representative sub-sample, is closely divided with respect to sex of child. Approximately 60% of our sample of children are white, 31% black, 6% Oriental, and 3% are Mexican-American. The children referred to as three-year-olds, incidentally, averaged about 44 months of age as of the middle of our three-year-old assessment year. The children themselves were brighter than average, though not extraordinarily so; the three-year-olds earned average Peabody Picture Vocabulary IQ scores of approximately 109 ($SD = 17$). The children live in an urban setting and their parents have achieved reasonable varied though typically rather high levels of educational and socio-economic status. The mean social class of the sample was 2.3 according to the Warner, Meeker, & Eells (1949) index, indicating a higher-than-average economic level. The fathers and mothers of the three-year-olds had acquired, on the average, 17 and 16 years of formal education, respectively. Both SES and educational achievement indices were negatively skewed in our sample.

Personality Data for the Children

California Child Q-set descriptions of the children. The children about whom I will be talking this morning entered our study while attending a nursery school for three-year-olds near the Berkeley campus. The personality characteristics of these three-year-olds were carefully described by their nursery school teachers using the standardized vocabulary of the

California Child Q-set (Block et al., 1974). The California Child Q-set consists of 100 widely ranging descriptive statements which are sorted into nine-step, rectangular distributions in order to characterize each child's personality. The Q-set item of greatest relevance to this study states that the child, "Becomes anxious when his environment is unpredictable or poorly structured." Children attending the nursery school for three-year-olds were described by two or three teachers or teacher-aides who had received training in the use of the Q-set items and who were explicitly instructed not to collaborate or confer when formulating their descriptions of the children. The two or three independently constructed descriptions were then averaged to create a composite description of each child at age three with respect to the 100 Q-set items. It is very important to understand that the teachers who generated these descriptions had observed the children for roughly three hours per school day over a period of five to nine months in a wide variety of activities and situations. In short, these teachers knew the children very well.

When the children moved on to the nursery school for four-year-olds they were again described by one, two, or three entirely different teachers who had also received training in the use of the Q-set. Again, the individual teachers' descriptions of each child were averaged to yield a composite Q-description of each child at age four.

As a result of this process, there are available for a sample of 87 children two 100-item Q-descriptions generated by entirely separate sets of teacher-observers and separated in time by one year. The cross-time correlation between the teacher-generated index of intolerance of ambiguity at age three and the index of intolerance of ambiguity assigned by an entirely different set of teacher-observers at age four was a highly sig-

nificant .50 (uncorrected for attenuation). A correlation of this magnitude indicates that intolerance of ambiguity is significantly stable over at least a one-year period at this age.

Lowenfeld Mosaic Test. The Lowenfeld Mosaic Test² (Lowenfeld, 1954) was individually administered to each of our three-year-olds by a familiar, young, white female examiner. Because the test presents the child with a standard set of materials (colored chips and a grey rectangular background on which to place them), a fairly ambiguous set of instructions ("...do something with these pieces...") and the opportunity to produce mosaics which vary widely in complexity and quality, the procedure is ideally suited for a test of the hypothesis that children who are comparatively intolerant of ambiguity will tend to impose premature structure in a relatively unstructured situation (Harrington, Block, & Block, Note 4). When the child had completed his or her mosaic (after a maximum working time of ten minutes) the examiner took a colored photograph of the child's production, using a pre-focussed, tripod-mounted Polaroid camera. These photographs were subsequently assessed by a set of five judges who independently scaled the mosaics with respect to their manifest structure and to a set of four judges who scaled those mosaics possessing sufficient structure with respect to their manifest imaginativeness. (The judges were unable and/or unwilling to assess imaginativeness in mosaics which fell below about the 40th percentile on the structure dimension). The estimated internal reliabilities of the composite structure and imaginativeness judgments were .96 and .88, respectively.

Curiosity Box. The Curiosity Box, patterned after a device and procedure described by Banta (1970), was individually administered to 116 of our three-year-olds by a familiar, young, white female examiner (not the

same examiner who administered the Lowenfeld Mosaic Test) and by an assistant observer. The Curiosity Box is an attractive and presumably intriguing box which measures 15" x 9" x 11 $\frac{1}{2}$ ". The multi-colored sides of the box have attached to them a variety of hinges, snaps, electrical switches, areas of sandpaper, pull-chains, latches, and peepholes. A "Slinky" is fastened to the top of the box. One of the electrical switches activates a buzzer and another turns on an internal light which illuminates some incongruous colored pictures. A squeakable rubber horse can be reached by a small hand extended through a partially blocked hole on the top of the box. By opening up a portion of the box it is possible for the child to manipulate a bell and gong and find a scredriver attached to a chain which can then be used to try to take the box apart.

During the first portion of one of the assessment sessions, the Curiosity Box rested on a table in the assessment room, covered with a cloth. Near the end of the session the examiner placed the Curiosity Box on a low table in front of the child, removed and elaborately folded the cloth cover and paused for 15 seconds to see if the child would spontaneously initiate exploratory activity. If the child did not initiate activity after 15 seconds, the examiner said, "This is for you to play with. There are lots of things here for you to play with. I have some things I want to write so I'll sit here, but I'll be here if you need me."

If necessary the permission was repeated and on the third permission the examiner touched some portion of the box to encourage the child. The Curiosity Box interaction was terminated by the examiner after five minutes or whenever the child terminated the interaction. Of the several recorded aspects of the child's behavior in this situation, two were particularly relevant to the purposes of this study: (1) initiation speed--an index of

of the child's eagerness to interact with this complex and probably ambiguous apparatus and, (2) total interaction time--an index of the child's willingness to continue interacting with the apparatus.

The Sandbox Situation. Seventy-seven of the three-year-olds were seen by two clinically trained child psychologists in a relatively unstructured, 20-minute **sandbox** play situation containing some elements of Lois Murphy's "World Test" (Murphy, 1956). The examiner, a friendly female adult, introduced herself to each child individually and introduced the child to a second woman who also observed the **sandbox** play. (Neither of these women contributed to any other description of these children reported here.) Each child was then ushered into an examination room in the center of which sat a small (24" x 40") sand table. The examiner called each child's attention to the sand and to the nine trays of miniature plastic toys and figures which lined the wooden ledge surrounding the **sandbox** and invited the child to play with the toys and the sand. Each child's behavior was recorded and rated by both examiner and observer using previously constructed scales and checklists. These two independent sets of ratings were then composited. Of particular relevance to this study were a number of scales indexing the child's willingness to engage in **sandbox** play and indexing the child's orientation to and use of the wide range of play materials.

Self-reported parental child-rearing attitudes and practices. During the year that their children were attending the nursery school for three-year-olds, 95 mothers and 83 fathers of these children described their child-rearing attitudes and practices by means of the Child Rearing Practices Report--a 91-item Q-set developed primarily by Jeanne Block. Encouraging evidence regarding the accuracy of these self-reports has been reported previously (Block, Note 1).

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Parental behaviors in a teaching situation. During the year that their children were attending nursery school for four-year-olds, 83 mothers and 74 fathers of the children we had seen at three also permitted us to observe and video-tape interactions between themselves and their children in a standardized situation in which each parent was asked to teach his or her child a battery of four cognitive tasks (Block, Block, & Harrington, Note 3). These tasks varied in the degree to which they seemed to demand convergent or divergent thinking abilities. Two parallel test batteries were constructed for use by the parents and we used a counter-balanced design controlling for ordering of teaching and test battery. A minimum of four weeks separated the mother and the father teaching situations.

One pair of divergent thinking tasks involved the construction of as many squares or posts as possible from either two-dimensional plastic pieces or three-dimensional wooden blocks and the other pair involved the naming of as many objects as possible that have either wings or wheels.

One pair of convergent-thinking tasks involved the correct placement of plastic pieces (geometric or human figures) in a $2 \times 3 \times 3$ matrix board and the other pair involved the successful negotiation of a maze (the most difficult WPSSI maze painted on the glass of an Etch-a-Sketch device or a modified Labyrinth tilting box maze) in which horizontal and vertical movements were controlled by two knobs.

While the child was out of the room the parent was given standard instructions which encouraged the parent to provide whatever help the child required to complete the four tasks. Each session was videotaped and observed by an examiner who watched through a one-way mirror. At the end of each session the examiner described the interaction by means of a 49-item Teaching Strategies Q-set. Furthermore, two additional independent

observers described the parent-child interactions on each of the four tasks using a 19-variable rating form. These observers studied specially-edited video-tapes in which all scenes of a given task interaction were spliced together for segregated viewing. In this way the observers were able to assess the four interactions independently.

Description of the mothers and the fathers by the mothers. When the children were either 5 or 6 years old, their mothers were asked to describe themselves and their husbands by means of a 42-item Adjective Q-sort. These descriptions also appear to contain information relevant to these analyses.

Results

In describing the results I would like to begin by noting that level of intolerance of ambiguity was not even marginally (all p's $>$.10) related to the child's sex, birth order, number of siblings, socio-economic status of the parents, parents' education, whether the mother worked outside the home or the degree to which the family was intact. These relationships were also not significant when we analyzed the samples of boys and girls separately.

Intolerance of ambiguity was significantly negatively related to Peabody Picture Vocabulary IQ, though to a relatively modest degree (r = -.25; p < .01).

Behavioral Manifestations of Intolerance of Ambiguity in Unstructured Situations

Intolerance of ambiguity significantly related to a production of

unimaginatively structured Lowenfeld mosaics. According to prediction, children who were made unusually anxious by ambiguity should have produced prematurely structured mosaics--that is, mosaics which were substantially structured but so simple and constricted as to be uninteresting and unimaginative. This prediction was confirmed.

For the purposes of this study, the Lowenfeld mosaics were classified as either unimaginatively structured (sufficiently structured to be scaled for imaginativeness and below the median of the imaginativeness ratings) or not unimaginatively structured (either insufficiently structured to be scaled for imaginativeness or above the median of the imaginativeness ratings). (These unimaginatively structured mosaics were constructed in significantly less time ($p < .05$), contained fewer pieces ($p < .005$) and utilized fewer color/shape combinations ($p < .0001$) than the rest of the mosaics, incidentally.) Treating the teacher-assigned index of intolerance of ambiguity as the dependent variable in a 2×2 (Sex \times Mosaic-Type) least squares ANOVA, intolerance of ambiguity was then found to be positively associated with the production of unimaginatively structured mosaics ($F_{1, 113} = 5.245$; $p < .05$) and was not even marginally associated with the main effect for Sex or with the Sex \times Mosaic Type interaction (both p 's $> .10$).

Children who were intolerant of ambiguity tended to avoid Curiosity Box interaction. The teacher-generated index of intolerance of ambiguity was negatively associated with the speed with which the children initiated contact with the Curiosity Box ($r = -.27$; $p < .01$) and was negatively associated with total interaction time ($r = -.32$; $p < .01$). These correlations are clearly compatible with the prediction that children who are intolerant of ambiguity will tend to avoid entering complex and ambiguous fields and, once in such a field, will terminate their interactions with the complex

aspects of that field more quickly than children who are made less anxious by ambiguity.

Intolerance of ambiguity significantly related to hesitancy, anxiety, and constriction in the sandbox. Correlations between the teacher-generated index of intolerance of ambiguity and independently-assessed aspects of sandbox behavior supported the prediction that children who were intolerant of ambiguity would hesitate to engage in sandbox play, would be made anxious by the lack of structure in the situation and would fail to explore or exploit the rich potential inherent in the available materials. The children independently described by their nursery school teachers as relatively intolerant of ambiguity did not readily enter into play ($r = -.37$; $p < .01$). They became anxious in response to the lack of structure ($r = +.30$; $p < .01$), they appeared to withdraw and disengage under stress ($r = +.33$; $p < .01$) and appeared to want out of the situation ($r = +.23$; $p < .05$). Their behavior was characterized by inhibition and constriction ($r = +.31$; $p < .01$), lack of much physical activity ($r = -.33$; $p < .01$) or expressive use of language ($r = -.34$; $p < .01$). They did not appear to be curious or exploring ($r = -.28$; $p < .05$) and they did not appear to be responsive to many aspects of the situation ($r = -.37$; $p < .01$). The characters in their play lacked inner complexity ($r = -.23$; $p < .05$), their play themes were not rich and complex ($r = -.33$; $p < .01$) and their themes were slow to develop if they developed at all ($r = +.43$; $p < .01$). They were not described as showing more than usual capacity for imaginative play ($r = -.36$; $p < .01$) nor were they described as being creative in the sandbox situation ($r = -.33$; $p < .01$).

Intolerance of Ambiguity and Parental Characteristics

Because the correlational patterns involving intolerance of ambiguity and parent-child interactions were substantially different for boys and girls

in our sample, the relationships involving boys are presented in Tables 1 through 3 and the relationships involving girls are presented in Tables 4 through 6.

Because of time restrictions I would like to direct your attention primarily to the two strongest and most coherent parent-child interactions present in these data; the father-son interactions reported in Tables 1 and 2 and the mother-daughter interactions reported in Tables 4 and 6.

Father-son interactions associated with sons' intolerance of ambiguity
were characterized by paternal hostility, impatience, and rejection. As can be seen in the first column of correlations in Table 1, fathers of boys who were seen as intolerant of ambiguity at age three tended to behave toward their sons in the teaching situation in a hostile, impatient and unresourceful manner. Intolerance of ambiguity among our sample of boys was significantly associated with the fathers' tendency to impatiently impose a rapid pace upon the situation, to intrude physically in the task, to appear uneasy and uns spontaneous with the son, to appear confused about what was expected of him, to restrict the son's non-goal-related behavior, to fail to respond in a resourceful way to the son's needs and to generally react to the son in an ego-deflating manner.

As can be seen in the first column of correlations in Table 2, several of these same themes were reflected in the fathers' self-reports of their child-rearing attitudes and practices with respect to their sons one year earlier. The fathers of boys who were intolerant of ambiguity tended to describe themselves as relatively cold, unresponsive and repressive in their child-rearing behavior. In addition, these fathers did not seem to expect much of their sons and did not encourage their sons to develop independence.

Mother-daughter interactions associated with daughters' intolerance of ambiguity were characterized by maternal supportiveness and warmth. As can be seen in the second column of correlations in Table 4, intolerance of ambiguity among our sample of girls was associated with a strong tendency on the part of the mother to quickly create structure in the teaching situation, to direct the daughter's attention to appropriate task variables and to interact with the daughter in a manner which was both warm and genuinely effective. (Fathers of girls who were particularly intolerant of ambiguity also tended to provide cognitive structure and establish effective working relationships with their daughters, though not as clearly and strongly as the mothers.) This picture of a helpful, structure-providing mother also emerged clearly in the mothers' self-descriptions generated one or two years later but did not emerge clearly in their self-reported child rearing attitudes and practices.

As can be seen in Table 6, intolerance of ambiguity among these girls was associated with the degree to which their mothers described themselves as generally considerate, neat and orderly, cheerful, sensible, helpful, sympathetic, but not sociable, not assertive, not energetic and active and not adventurous. As you can also see in Table 6, the fathers of girls who were relatively intolerant of ambiguity were also described by their wives as unusually considerate, reasonable and helpful. The fact that the mothers generated these descriptions one or two years after the teaching situation and the fact that they were instructed to describe themselves and their husbands generally and not simply in the context of their relationships with their children suggests that the theme of parental helpfulness so evident in Table 4 was more than just a specific response elicited by the daughter's distress in the teaching situation.

Discussion

The correlations between the teacher-generated index of intolerance of ambiguity and aspects of the children's behavior in each of three relatively unstructured situations are readily explained in terms of the conjectures regarding intolerance of ambiguity articulated by Frenkel-Brunswik. According to those conjectures, and as demonstrated here, children who are made unusually anxious by ambiguity tend to avoid and/or quickly leave complex and ambiguous fields, tend to restrict their attention to relatively few elements within those fields and tend to impose and cling to premature and overly-simplified solutions in ambiguous problem situations. If, as Piaget has suggested (Piaget, 1970), the development of accommodative structures is a function of the organism's active interaction with the environment, it is possible that defensive techniques employed by a child who is unusually intolerant of ambiguity could minimize the child's opportunity to exercise, strengthen, and gradually gain confidence in precisely those accommodative structures and strategies needed to cope effectively with ambiguous situations. Intolerance of ambiguity could, therefore, be substantially self-perpetuating. Though these speculations go beyond the data reported here, they are reasonably clear implications of the data viewed from a Piagetian perspective.

In this context of potentially self-perpetuating processes and characteristics, the parent-child correlations reported here are also particularly intriguing. Hence a few quick speculations regarding some possible causal relationships and some possible ramifications of those relationships.

On the one hand it is possible that children who are intolerant of ambiguity elicit particular patterns of parental response and do so differentially with respect to their sex. It is possible, for example, that parents

who see a daughter becoming anxious in the face of ambiguity may tend to respond with sympathy and may immediately attempt to create cognitive structure and emotional support for the daughter in order to reduce her anxiety. The correlations in Table 4 are certainly compatible with such an explanation. It is also possible that some fathers who see their sons repeatedly becoming anxious in the face of ambiguity may be deeply disturbed by their sons' behavior and may react with anger, impatience and awkward attempts to dissociate themselves from their sons' anxious and probably ineffective behavior. The correlations in Tables 1 and 2 are certainly compatible with this explanation.

On the other hand, the relationships in these tables may reflect a tendency for particular types of parental behavior to shape the attitudes and behaviors of the children.. It is possible, for example, that parents who tend to provide their daughters with too much structure and support may prevent the girls from developing their own ways of effectively coping with ambiguity and may thereby have the unintended effect of producing girls who become anxious in the face of ambiguity primarily because they have had inadequate experience dealing with it. (The correlations of Tables 4 and 6 are compatible with this explanation.) Similarly, it is possible that hostility and rejection on the part of a father may create an emotional insecurity in boys which renders them unusually susceptible to anxiety of any sort and it is further possible that the father's impatience and pressure for quick responding (which was clear in Table 1) tends to create in sons a particular anxiety about ambiguous situations in which it is especially difficult to quickly generate an appropriate response.

There is, of course, no reason to restrict speculation to one-way causal relationships, for it is quite possible that the parent-child

relationships relevant to the development and maintenance of intolerance of ambiguity are bi-directional and mutually supportive in character. Again the potentially self-perpetuating character of intolerance of ambiguity in young children is evident in these psychologically plausible though empirically untested speculations. The need for a fine-grained and probably longitudinal analysis of the relationships underlying these parent-child correlations is obvious.

Summary

In summary, these data suggest that nursery school teachers equipped with appropriate descriptive instruments can index intolerance of ambiguity in preschool children, that intolerance of ambiguity is significantly stable over at least a one year period at this age and that children who are intolerant of ambiguity tend to avoid, restrict attention within and impose premature structure upon relatively unstructured situations. A number of parent-child correlations also suggest that intolerance of ambiguity in 3 1/2 year-old boys is significantly associated with paternal hostility, impatience and rejection and that intolerance of ambiguity in young girls is significantly associated with unusually high levels of maternal supportiveness. Given the possible developmental ramifications of intolerance of ambiguity and given the possibility that parental behaviors may be causally linked to children's intolerance of ambiguity, a closer examination of those aspects of parent-child interaction implicated by our findings is clearly called for.

Footnotes

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2. Badger Tests Co., Liverpool House, 15-17 Eldon Street, London E. C. 2, England.

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Reference Notes

1. Block, J. H. The Child-rearing Practices Report (CRPR): A set of Q-items for the descriptions of parental socialization attitudes and values. Unpublished manuscript, 1975. Available from Dr. J. H. Block, Institute of Human Development, 1117 Tolman Hall, University of California, Berkeley, California 94720.
2. Block, J. & Block, J. H. Ego development and the provenance of thought: A longitudinal study of ego and cognitive development in young children. Unpublished progress report for the National Institute of Mental Health. Berkeley: University of California, 1973. Available from: Professor Jack Block, Department of Psychology, University of California, Berkeley, California, 94720.
3. Block, J. H., Block, J., & Harrington, D. M. The relationship of parental teaching strategies to ego-resiliency in pre-school children. Paper presented at the meeting of the Western Psychological Association, San Francisco, April, 1974. (Available upon request from the senior author.)
4. Harrington, D. M., Block, J., & Block, J. H. Measuring facets of creativity and intolerance of ambiguity in pre-school children with the Lowenfeld Mosaic Test. Paper presented at the meeting of the Western Psychological Association, San Francisco, April, 1974. (Available from D. M. Harrington, Department of Psychology, Tolman Hall, University of California, Berkeley, California, 94720.)

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References

- Banta, T. J. Tests for the evaluation of early childhood education: The Cincinnati Autonomy Test Battery (CATB). In J. Hellmuth (Ed.), Cognitive studies (Vol.1). New York: Brunner/Mazel, 1970.
- Block, J., Block, J. H., & Harrington, D. M. Some misgivings about the Matching Familiar Figures Test as a measure of reflection-impulsivity. Developmental Psychology, 1974, 10, 5, 611-632.
- Frenkel-Brunswik, E. Intolerance of ambiguity as an emotional and perceptual personality variable. Journal of Personality, 1949, 18, 1, 108-143.
- Levitt, E. E. Studies in intolerance of ambiguity: I. The Decision Location Test with grade school children. Child Development, ^{1953,} 24, ¹ 3-4, 263-268.
- Lowenfeld, M. The Lowenfeld Mosaic Test. London: Newman Neame, 1954.
- McCandless, B. R. & Holloway, H. D. Race prejudice and intolerance of ambiguity in children. Journal of Abnormal and Social Psychology, 1955, 51, 3, 692-693.
- Murphy, L. Methods for the study of personality in young children. New York: Basic Books, Inc, 1956.
- Muss, R. E. A comparison of "high causally" and "low causally" oriented sixth grade children on personality variables indicative of mental health. Proceedings of the Iowa Academy of Science, 1959, 66, 388-394.
- Muss, R. E. A comparison of "high causally" and "low causally" oriented sixth grade children in respect to a perceptual "intolerance of ambiguity test." Child Development, 1960, 31, 521-536.
- Piaget, J. Piaget's theory. In P. H. Mussen (Ed.), Carmichael's manual of child psychology (Vol. 1) (3rd ed.). New York: Wiley, 1970.

References (Continued)

Reitman, W. R. Cognition and thought. New York: Wiley, 1965.

Rosenblum, S. Ethnocentrism and intolerance of ambiguity in mentally retarded children. American Journal of Mental Deficiency, 1957, 61, 567-573.

Smock, C. D. The influence of psychological stress on the "intolerance of ambiguity." Journal of Abnormal and Social Psychology, 1955, 50, 2, 177-182.

Smock, C. D. The influence of stress on the perception of incongruity. Journal of Abnormal and Social Psychology, 1955, 50, 354-356.

Warner, W. L., Meeker, M., & Eells, K. Social class in America. Chicago: Science Research Associates, 1949.

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SRCD, April, 1975

Table 1

Parental Behaviors in a Teaching Situation Associated with Intolerance of Ambiguity
in Three-Year-Old Boys

<u>Aspects of Parental Behavior (Based upon Direct and Video-Tape Observations)</u>	<u>Correlations</u>	
	<u>Father</u>	<u>Mother</u>
<u>Positively-related characteristics</u>		
Adult's pacing of session is faster than child's.	+.40**	+.02
Is impatient with child.	+.39**	+.00
Is hostile.	+.39**	+.11
Adult physically intrudes in tasks.	+.38**	+.12
Seems confused about what is expected in the situation.	+.35**	-.03
Child required much help in divergent tasks.	+.34*	+.13
Enjoys his or her role as teacher.	-.09	+.31*
Has a clear and coherent teaching style.	-.26	+.29*
Parent encouraged child in convergent tasks.	+.08	+.29*
Parent tended to physically intervene in convergent tasks.	-.09	+.33*
Parent was ego-involved in convergent tasks.	-.00	+.32*
<u>Negatively-related parental behaviors</u>		
Parent tended to permit non-goal-oriented convergent task activity.	-.55*	-.12
Parent reacted to child in ego-enhancing manner in convergent tasks.	-.40**	-.05
Is responsive to child's needs from moment to moment.	-.40**	-.17
Seems easy and relaxed in situation.	-.40**	-.06
Is spontaneous with child.	-.38**	-.20
Parent reacted to child in ego-enhancing manner in divergent tasks.	-.37**	-.05
Allows child to engage in non-task-oriented play.	-.34*	-.10

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Table 1 (Continued)

<u>Aspects of Parental Behavior (Based upon direct and Video Tape Observations)</u>	<u>Correlations</u>	
	<u>Father</u>	<u>Mother</u>
<u>Negatively-related parental behaviors (Continued)</u>		
Is resourceful in helping child accomplish assigned tasks.	-.31*	+.07
Parent used incidental teaching opportunities in divergent tasks.	-.30*	-.02
Adult and child express disagreements openly.	-.30*	-.04

Note. N's for Fathers range from 27 to 33; N usually = 32 or 33.

N's for Mothers range from 20 to 38; N usually = 36.

* = .10, two-tailed.

** = .05, two-tailed.

*** = .01, two-tailed.

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Table 2

Self-Reported Parental Child-Rearing Practices and Attitudes Associated with
Intolerance of Ambiguity in Three-Year-Old Boys

<u>Child-rearing Practices Report Items</u>	<u>Correlations</u>	
	<u>Fathers' Reports</u>	<u>Mothers' Reports</u>
<u>Positively-related items</u>		
I believe children should not have secrets from their parents.	+ .48***	+ .32**
I don't think young children of different sexes should be allowed to see each other naked..	+ .35***	+ .30**
I believe that a child should be seen and not heard.	+ .32*	- .02
I feel my child is a bit of a disappointment to me.	+ .31*	+ .19
I believe in toilet training a child as soon as possible.	+ .31*	+ .23
I teach my child to keep control of his feelings at all times.	+ .27*	+ .29*
I try to stop my child from playing rough games or doing things where he might get hurt.	- .04	+ .42***
I don't go out if I have to leave my child with a stranger.	- .03	+ .31**
I believe that too much affection and tenderness can harm or weaken a child.	+ .20	+ .28*
I believe it is very important for a child to play outside and get plenty of fresh air.	+ .19	+ .27*
<u>Negatively-related items</u>		
I joke and play with my child.	- .60***	- .33**
I think it is wrong to insist that young boys and girls have different kinds of toys and play different sorts of games.	- .53***	- .14
I like to have some time for myself, away from my child.	- .49***	- .30**
I expect a great deal of my child.	- .38**	- .40**
I don't allow my child to tease or play tricks on others.	- .37**	- .09
I express affection by hugging, kissing and holding my child.	- .36**	- .14

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Table 2 (Continued)

<u>Child-rearing Practices Report Items</u>	<u>Correlations</u>	
	Fathers' Reports	Mothers' Reports
<u>Negatively-related items (Continued)</u>		
My child and I have warm, intimate times together.	-.34**	-.19
When I am angry with my child, I let him know it.	-.32**	-.30**
I put the wishes of my mate before the wishes of my child.	-.31*	-.01
I sometimes talk about supernatural forces and beings in explaining things to my child.	-.30*	-.12
I give my child a good many duties and family responsibilities.	-.28*	-.06
I believe that scolding and criticism makes my child improve.	-.18	-.36**
I think a child should be encouraged to do things better than others.	+.04	-.31**
I wish my child did not have to grow up so fast.	+.02	-.27*
I want my child to make a good impression on others.	-.18	-.26*
I think jealousy and quarreling between brothers and sisters should be punished.	+.18	-.26*

Note. Fathers' N = 38; Mothers' N = 45.

* = .10, two-tailed.

** = .05, two-tailed.

*** = .01, two-tailed.

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Table 3

Mothers' Descriptions of Selves and Husbands Associated with
Intolerance of Ambiguity in Three-Year-Old Boys

<u>Adjective Descriptions Generated by Mothers</u>	<u>Correlations</u>	
	<u>Fathers</u>	<u>Mothers</u>
<u>Positively-related adjectives</u>		
Affectionate	+.12	+.30*
Sympathetic	-.06	+.30*
Obedient	+.11	+.29*
<u>Negatively-related adjectives</u>		
Curious	-.31*	-.24
Competent, does things well	-.04	-.47***
Reserved, shy	+.22	-.31*

Note. Father N's = 35; Mothers' N's = 36.

* = .10, two-tailed.

** = .05, two-tailed.

*** = .01, two-tailed.

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Table 4

Parental Behaviors in a Teaching Situation Associated with
Intolerance of Ambiguity in Three-Year-Old Girls

<u>Aspects of Parental Behavior (Based upon Direct and Video-Tape Observations)</u>	<u>Correlations</u>	
	<u>Fathers' Behavior</u>	<u>Mothers' Behavior</u>
<u>Positively-related parental behaviors</u>		
Parent tended to overstructure convergent tasks.	+.39**	+.38**
Is able to establish good working relationship with child.	+.35**	+.28*
Adult's pacing of session is faster than child's	+.30*	+.04
Adult attends to cognitive elements in the situation.	+.28*	+.10
Parent was warm and supportive in convergent tasks.	+.13	+.43***
Parent was resourceful in convergent tasks.	-.08	+.36**
Parent labelled precisely in convergent tasks.	+.13	+.35**
Adult structures task at outset; engages in proactive teaching.	+.19	+.33**
Parent focussed convergent task behavior.	-.02	+.30**
Enjoys his or her role as teacher.	-.09	+.26*
<u>Negatively-related parental behaviors</u>		
Gets into power struggles with child; adult and child compete.	-.30*	-.25
Seems confused about what is expected in the situation.	-.04	-.33**
Appears frustrated by inability to find adequate strategies.	-.25	-.26*

Note. N's for fathers' behaviors ranged from 19 to 41; N usually was 40 or 41.

N's for mothers' behaviors ranged from 22 to 45; N usually was 44 or 45.

* = .10 level, two-tailed. ** = .05 level, two-tailed. *** = .01 level, two-tailed.

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Table 5

Self-Reported Parental Child-Rearing Practices and Attitudes Associated with
Intolerance of Ambiguity in Three-Year-Old Girls

<u>Child-rearing Practices Report Items</u>	<u>Correlations</u>	
	<u>Fathers' Reports</u>	<u>Mothers' Reports</u>
<u>Positively-related items</u>		
I think a child should be weaned from the breast or bottle as soon as possible.	+.39***	+.01
I joke and play with my child.	+.28*	+.10
I sometimes talk about supernatural forces and beings in explaining things to my child.	+.28*	+.04
I believe in toilet training a child as soon as possible.	+.26*	-.09
I get pleasure from seeing my child eating well and enjoying his food.	+.22	+.43***
I believe that too much affection and tenderness can harm or weaken a child.	+.18	+.34**
I punish my child by taking away a privilege he otherwise would have had.	-.20	+.33**
I feel a child should be given comfort and understanding when he is scared or upset.	-.19	+.26*
<u>Negatively-related items</u>		
I think a child should be encouraged to do things better than others.	-.48***	+.11
I expect a great deal of my child.	-.40***	-.16
I watch closely what my child eats and when he eats.	-.31**	-.37***
I try to stop my child from playing rough games or doing things where he might get hurt.	-.28*	+.12

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Table 5 (Continued)

<u>Child-rearing Practices Report Items</u>	<u>Correlations</u>	
	<u>Fathers' Reports</u>	<u>Mothers' Reports</u>
<u>Negatively-related items (Continued)</u>		
I think children must learn early not to cry.	-.27*	-.01
I trust my child to behave as he should, even when I am not with him.	-.25*	-.08
I enjoy having the house full of children.	-.21	-.35**
I encourage my child always to do his best.	-.16	-.24*

Note. Fathers' N = 45; Mothers' N = 50.

* = .10, two-tailed.

** = .05, two-tailed.

*** = .01, two-tailed.

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Table 6

Mothers' Descriptions of Selves and Husbands Associated with
Intolerance of Ambiguity in Three-Year-Old Girls

<u>Adjective Descriptions Generated by Mothers</u>	<u>Correlations</u>	
	<u>Fathers</u>	<u>Mothers</u>
<u>Positively-related adjectives</u>		
Considerate	+ .51***	+ .56***
Reasonable	+ .46***	+ .16
Cheerful	+ .45***	+ .45***
Affectionate	+ .40**	- .07
Helpful	+ .39**	+ .35**
Generous	+ .31*	- .08
Orderly, neat	- .33*	+ .46***
Sensible	+ .18	+ .45***
Sympathetic	+ .18	+ .30*
<u>Negatively-related adjectives</u>		
Stubborn	- .38**	- .02
Competent, does things well	- .36**	- .11
Independent	- .34*	+ .02
Impulsive	- .32*	- .11..
Assertive	- .31*	- .38**

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Table 6 (Continued)

<u>Adjective Descriptions Generated by Mothers</u>	<u>Correlations</u>	
	<u>Fathers</u>	<u>Mothers</u>
<u>Negatively-related adjectives, continued</u>		
Show-off, likes to be the center of attention	-.29*	+.00
Sociable, likes to be with others	+.14	-.39**
Adventurous	-.22	-.35**
Energetic, active	+.11	-.35**

Note. Fathers' N = 33; Mothers' N = 33.

* = .10, two-tailed.

** = .05, two-tailed.

*** = .01, two-tailed.